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L5	l3 and l4	7	L5
L4	organ$3 or polymer$4	2232405	L4
L3	l1 and l2	47	L3
L2	cdte or (cadmium adj telluride)	6215	L2
L1	((438/795 |438/796 |438/797 |438/798 |438/799)!.CCLS.)	2364	L1

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Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 5937318 A

L5: Entry 1 of 7 File: USPT Aug 10, 1999

US-PAT-NO: 5937318
DOCUMENT-IDENTIFIER: US 5937318 A

TITLE: Monocrystalline three-dimensional integrated circuit

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 5714404 A

L5: Entry 2 of 7 File: USPT Feb 3, 1998

US-PAT-NO: 5714404
DOCUMENT-IDENTIFIER: US 5714404 A

TITLE: Fabrication of polycrystalline thin films by pulsed laser processing

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 5578502 A

L5: Entry 3 of 7 File: USPT Nov 26, 1996

US-PAT-NO: 5578502
DOCUMENT-IDENTIFIER: US 5578502 A

TITLE: Photovoltaic cell manufacturing process

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 5252499 A

L5: Entry 4 of 7 File: USPT Oct 12, 1993

-PAT-NO: 5252499
UMENT-IDENTIFIER: US 5252499 A

: Wide band-gap semiconductors having low bipolar resistivity and method of
ion

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
Draw. Desc | Image

☐ 5. Document ID: US 4771010 A

L5: Entry 5 of 7 File: USPT Sep 13, 1988

US-PAT-NO: 4771010
DOCUMENT-IDENTIFIER: US 4771010 A

TITLE: Energy beam induced layer disordering (EBILD)

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 6. Document ID: US 4709466 A

L5: Entry 6 of 7 File: USPT Dec 1, 1987

US-PAT-NO: 4709466
DOCUMENT-IDENTIFIER: US 4709466 A

TITLE: Process for fabricating thin film photovoltaic solar cells

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 7. Document ID: US 4566918 A

L5: Entry 7 of 7 File: USPT Jan 28, 1986

US-PAT-NO: 4566918
DOCUMENT-IDENTIFIER: US 4566918 A

TITLE: Utilizing interdiffusion of sequentially deposited links of HgTe and CdTe

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

Generate Collection | Print

Terms	Documents
l3 and l4	7

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WEST

Freeform Search

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Term: l5 and l6

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DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L8	l5 and l6	30	L8
L7	L6	118999	L7
L6	photovolta$4 or solar	118999	L6
L5	l1 and l2 and l4	96	L5
L4	laser	553825	L4
L3	l1 same l2	16	L3
L2	cdte or (cadmium adj telluride)	6215	L2
L1	pen or pet or terephthalate or naphthalate	229187	L1

END OF SEARCH HISTORY

benzyl alc. 36.7% was screen printed on the sintered CdS film, heated at 400.degree. for 1 h, and at 620.degree. in N for 1 h to form a sintered **CdTe** film. A C-Ag electrode and a Ag or In electrode were then formed on the **CdTe** and CdS films, resp., to form a **solar cell**. The sintered layers showed no cracks and had accurate patterning, and the prepd. cell had an output voltage of 0.8 V.

ST cadmium sulfide **solar cell**; **telluride cadmium solar cell**; polymethyl methacrylate **solar cell** manuf

IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride**, screen printing in manuf. of)

IT 9011-14-7 25087-26-7
RL: USES (Uses)
(in manuf. of **cadmium** sulfide-**cadmium telluride solar cells**)

IT 1306-25-8P, preparation
RL: PREP (Preparation)
(photoelec. **solar cells** from junctions of cadmium sulfide and, screen printing in manuf. of)

IT 1306-23-6P, preparation
RL: PREP (Preparation)
(photoelec. **solar cells** from junctions of **cadmium telluride** and, screen printing in manuf. of)

L12 ANSWER 20 OF 26 CA COPYRIGHT 2002 ACS
AN 105:118209 CA
TI **Solar-cell** module
IN Nakano, Akihiko; Ikegami, Seiji; Matsuoka, Naoki; Ijichi, Ichiro
PA Matsushita Electric Industrial Co., Ltd., Japan; Nitto Electric Industrial Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61110472	A2	19860528	JP 1984-232647	19841105

PI JP 61110472 A2 19860528 JP 1984-232647 19841105

AB A **solar cell** module has a protection film of an insulation screen and an Al foil attached by a thermoplastic resin to the backside of **solar cells** formed on a glass substrate. The resin is a mixt. of an .alpha.,.beta.-unsatd. carboxylic acid-graft modified polyethylene (or ethylene-unsatd. ester copolymer) and an arom. vinyl hydrocarbon **polymer** or poly(vinyl halide) or a mixt. of ethylene-vinyl acetate copolymer and acrylic acid-graft polystyrene. Thus, a 85-.mu. poly(ethylene terephthalate) screen and an Al foil were bonded to a CdS-**CdTe solar-cell** module with ethylene-vinyl acetate copolymer layers to form a protection film. After a 1000-h exposure to 75.degree. and 95% relative humidity, the performance of the module decreased <4%.

ST cadmium sulfide **solar cell**; **telluride cadmium solar cell**; ethylene copolymer **solar cell** protection; vinyl acetate copolymer **solar cell**

IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride** or silicon, thermoplastic binder for protection films for)

IT 9003-53-6

RL: USES (Uses)
(binder mixt. contg., for **solar-cell** protection films)

IT 24937-78-8
RL: USES (Uses)
(binders, for **solar-cell** proteiction films)

IT 26713-18-8
RL: USES (Uses)
(graft, binder mixt. from polystyrene and, for **solar-cell** protection films)

L12 ANSWER 21 OF 26 CA COPYRIGHT 2002 ACS
AN 102:206636 CA
TI **Solar cell**
IN Nakano, Akihiko; Matsumoto, Hitoshi; Uda, Hiroshi; Komatsu, Yasumasa; Kuribayashi, Kiyoshi; Ikegami, Seiji
PA Matsushita Electric Industrial Co., Ltd. , Japan
SO Ger. Offen., 23 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM H01L031-04
ICS C03C017-32; C03C017-38
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3428775	A1	19850228	DE 1984-3428775	19840801
	JP 60032352	A2	19850219	JP 1983-141333	19830801
PRAI	JP 1983-141333		19830801		

AB A **solar-cell** module comprises a glass substrate, a **solar-cell** section from several thin-layer, amorphous Si or Group 12/16 (IIB/VIA), **solar cells**, which are formed by retaining an edge region along the substrate edge, and a resin layer applied on the **solar-cell** section and the edge-region of the substrate. The module has also a resin back-side protection layer, which covers the cell section and the edge region of the substrate. The resin is preferably a fluoropolymer selected from compds. contg. perfluoroalkylene groups and active H atoms. Thus, on a 900-cm2 glass substrate, a CdS/**CdTe solar-cell** section was formed retaining an edge region along the substrate edge. As backside protection layer a resin-coated Al foil with a poly(vinyl butyral) adhesive (0.38 mm) was used. A test module with an edge-region width of 6.5 mm showed only very small changes in appearance and in photoelec. properties after immersing for 24 h in water at 100.degree. and then in water at 0.degree. for 24 h.

ST cadmium sulfide **solar cell** module; copper sulfide **solar cell** module; silicon **solar cell** module; polyvinyl butyral **solar cell** module

IT Photoelectric devices, solar
(module, manuf. of and adhesives and coating materials for)

IT Epoxy resins, uses and miscellaneous
Rubber, silicone, uses and miscellaneous
Siloxanes and Silicones, uses and miscellaneous
Urethane **polymers**, uses and miscellaneous
RL: USES (Uses)
(photoelec. **solar-cell** module contg., **cadmium** sulfide-**cadmium telluride**)

IT Phenolic resins, uses and miscellaneous
RL: USES (Uses)
(resol, photoelec. **solar-cell**, module contg.,

cadmium sulfide-**cadmium telluride**)

IT Vinyl acetal **polymers**
RL: USES (Uses)
(butyrals, adhesive, photoelec. **solar-cell** module contg., **cadmium** sulfide-**cadmium telluride**)

IT 1306-25-8P, preparation
RL: PREP (Preparation)
(photoelec. **solar cell** from heterojunction of cadmium sulfide and, manuf. of module of)

IT 1306-23-6P, preparation
RL: PREP (Preparation)
(photoelec. **solar cell** from heterojunction of **cadmium telluride** and, manuf. of module of)

IT 108-80-5D, adduct of hexamethylene diisocyanate 822-06-0D, adduct of cyanuric acid 86472-86-8 86923-92-4 96352-11-3 96352-16-8 96352-68-0 96352-85-1 96352-98-6 96353-84-3 96353-85-4 96353-86-5 96353-87-6
RL: USES (Uses)
(photoelec. **solar-cell** module contg., **cadmium** sulfide-**cadmium telluride**)

L12 ANSWER 22 OF 26 CA COPYRIGHT 2002 ACS
AN 102:206554 CA
TI Applications of electrogenerated conducting **polymers** in electrochemical **photovoltaic** cells
AU Noufi, Rommel
CS Sol. Electr. Convers. Res. Div., Sol. Energy Res. Inst., Golden, CO, 80401, USA
SO Conf. Rec. IEEE Photovoltaic Spec. Conf. (1982), 16th, 1293-8
CODEN: CRCNDP; ISSN: 0160-8371
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
AB The electrochem. generated conducting polypyrrole PP [30604-81-0] films protect n-type semiconductor photoelectrodes from degrdn. while permitting electron exchange between the semiconductor and the electrolyte. The performance characteristics and stability of PP-covered GaAs, Si, **CdTe**, CdSe, and CdS photoelectrodes are discussed.
ST polypyrrole coating photoelectrochem electrode; silicon polypyrrole photoelectrochem electrode; sulfide cadmium polypyrrole photoelectrochem electrode; selenide cadmium polypyrrole photoelectrochem electrode; gallium arsenide polypyrrole photoelectrochem electrode; **cadmium telluride** polypyrrole photoelectrochem electrode
IT Electrodes
(photoelectrochem., polypyrrole-coated, performance and stability of)
IT 30604-81-0
RL: USES (Uses)
(electrodes coated with, photoelectrochem., performance and stability of)
IT 1303-00-0, uses and miscellaneous 1306-23-6, uses and miscellaneous 1306-24-7, uses and miscellaneous 1306-25-8, uses and miscellaneous 7440-21-3, uses and miscellaneous
RL: USES (Uses)
(electrodes from polypyrrole-coated, photoelectrochem., performance and stability of)

L12 ANSWER 23 OF 26 CA COPYRIGHT 2002 ACS
AN 100:54608 CA
TI Photoelectrochemical cells for conversion of solar energy to electricity
IN Skotheim, Terje

PA USA
SO U.S., 11 pp. Cont.-in-part of U.S. 4,352,868.
CODEN: USXXAM
DT Patent
LA English
IC H01M006-36

L13 ANSWER 5 OF 5 INSPEC COPYRIGHT 2002 IEE
AN 1981:1722104 INSPEC DN A81070652; B81039115
TI A tandem **photovoltaic** cell using a thin-film **polymer** electrolyte.
AU Skotheim, T. (Lab. d'Electrochimie Interfaciale, CNRS, Meudon-Bellevue, France)
SO Applied Physics Letters (1 May 1981) vol.38, no.9, p.712-14. 17 refs. CODEN: APPLAB ISSN: 0003-6951
DT Journal
TC New Development; Practical
CY United States
LA English
AB A tandem **photovoltaic** cell has been fabricated using a thin-film plastic electrolyte to connect in optical and electrical series an n-type CdS thin-film and a p-type **CdTe** single crystal. The electrolyte was a thin film of poly(ethylene oxide) with a polysulfide redox couple. An open circuit voltage of 625 mV and a short-circuit current of 35 mu A/cm2 were obtained under illumination of 100 mW/cm2 with a xenon lamp. The cell output in the present configuration is limited by the series resistance and insufficient band bending in the semiconductor electrodes due to unfavorable resistance matching of the components.
CC A8630J Photoelectric conversion: solar cells and arrays; A8630K Photoelectrochemical conversion; B8420 Solar cells and arrays
CT CADMIUM COMPOUNDS; ELECTROLYTES; II-VI SEMICONDUCTORS; PHOTOELECTROCHEMICAL CELLS; **PHOTOVOLTAIC** CELLS; **SOLAR CELLS**
ST **tandem photovoltaic cell; thin-film polymer electrolyte** ; n-type CdS thin-film; **p-type CdTe single crystal;** poly(ethylene oxide); polysulfide redox couple; open circuit voltage; short-circuit current; cell output; series resistance; band bending
ET Cd*S; CdS; Cd cp; cp; S cp; Cd*Te; Cd sy 2; sy 2; Te sy 2; CdTe; Te cp

=>

(1) Dieter, B; US 5304499 A 1994 CA
(2) Hu, H; JOURNAL OF CRYSTAL GROWTH V152(3), P150 CA
(3) Kogyo Gijutsuin; JP 58194377 A 1983 CA
(4) Nishiwaki, H; SOLAR ENERGY MATERIALS AND SOLAR CELLS V37(3/04), P295
(5) Nissha Printing Co Ltd; JP 05090624 A 1993 CA
(6) Sumitomo Bakelite Co Ltd; JP 61168271 A 1986 CA
(7) Teijin Ltd; JP 62084568 A 1987

L12 ANSWER 7 OF 26 CA COPYRIGHT 2002 ACS
AN 131:76094 CA
TI Nanoparticle-based contacts to **CdTe**
AU Schulz, D. L.; Ribelin, R.; Curtis, C. J.; King, D. E.; Ginley, D. S.
CS National Renewable Energy Laboratory, Photovoltaic and Electronic Materials Center and Basic Sciences Center, Golden, CO, 80401-3393, USA
SO Mater. Res. Soc. Symp. Proc. (1999), 536(Microcrystalline and Nanocrystalline Semiconductors--1998), 407-411
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
AB Our team has been investigating the use of particle-based contacts in **CdTe solar cell** technologies. Toward this end, particles of Cu-doped HgTe (Hg-Cu-Te) and SbTe have been applied as contacts to **CdTe**/CdS/SnO2 heterostructures. These metal telluride materials were characterized by std. methods. Hg-Cu-Te particles in graphite electrodag contacts produced **CdTe solar cells** with efficiencies above 12% and series resistance (Rse) of 6 .OMEGA. or less. Metathesis prepn. of Cu(I) and Cu(II) tellurides (i.e., Cu2Te and CuTe, resp.) were attempted as a means of characterizing the valence state of Cu in the Hg-Cu-Te ink. For SbTe contacts to **CdTe**, open circuit voltages (Vocs) in excess of 800 mV were obsd., however, efficiencies were limited to 9%; perhaps a consequence of the marked increase in the Rse (i.e., >20 .OMEGA.) in these non-graphite contg. contacts. Acetylene black was mixed into the methanolic SbTe colloid as a means of reducing Rse, however, no improvement in device properties was obsd.
ST **cadmium telluride solar cell;** nanoparticle based elec contact **solar cell**
IT Acrylic **polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrodag contg.; nanoparticle-based contacts to **CdTe solar cell** technologies)
IT Electric contacts
Solar cells
(nanoparticle-based contacts to **CdTe solar cell** technologies)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nanoparticle-based contacts to **CdTe solar cell** technologies)
IT 67-56-1, Methanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Br soln. of, etchant; nanoparticle-based contacts to **CdTe solar cell** technologies)
IT 7726-95-6, Bromine, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(MeOH soln.. etchant; nanoparticle-based contacts to **CdTe solar cell** technologies)
IT 7440-50-8, Copper, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; nanoparticle-based contacts to **CdTe solar**

cell technologies)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses 7782-42-5, Graphite, uses 12067-31-1, Antimony telluride sbte 12068-90-5, Mercury telluride hgte 18282-10-5, Tin dioxide
RL: DEV (Device component use); USES (Uses)
(nanoparticle-based contacts to **CdTe solar cell** technologies)

IT 12019-23-7P, Copper telluride cute 12019-52-2P, Copper telluride cu2te
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nanoparticle-based contacts to **CdTe solar cell** technologies)

L12 ANSWER 8 OF 26 CA COPYRIGHT 2002 ACS
AN 130:40957 CA
TI Curable **polymer** electrically conducting pastes, and electrodes and **solar cells** using them
IN Ooya, Hirohisa
PA Murata Mfg. Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01B001-20
ICS H01L031-0264
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10302543	A2	19981113	JP 1997-107780	19970424

AB The pastes contain anion exchangers and silane coupling agents. The electrodes and **solar cells** using the pastes are also claimed. The pastes showed good adhesion even at high temp.
ST anion exchanger elec conducting paste electrode; silane coupling agent conducting paste electrode; **solar cell** electrode elec conducting paste
IT Anion exchangers
Coupling agents
Electrically conductive pastes
Photoelectric cell electrodes
(elec. conducting pastes contg. anion exchangers and silane coupling agents for electrodes of **solar cells**)
IT Silanes
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(elec. conducting pastes contg. anion exchangers and silane coupling agents for electrodes of **solar cells**)
IT 2530-83-8, .gamma.-Glycidoxypropyltrimethoxysilane
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(elec. conducting pastes contg. anion exchangers and silane coupling agents for electrodes of **solar cells**)
IT 10361-43-0, Bismuth hydroxide 152761-81-4, Antimony hydroxide
RL: MOA (Modifier or additive use); USES (Uses)
(elec. conducting pastes contg. anion exchangers and silane coupling agents for electrodes of **solar cells**)
IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses
RL: DEV (Device component use); USES (Uses)
(semiconductors; elec. conducting pastes contg. anion exchangers and

silane coupling agents for electrodes of **solar cells**
)

L12 ANSWER 9 OF 26 CA COPYRIGHT 2002 ACS
AN 129:205144 CA
TI **Photovoltaic** structures based on **polymer**/semiconductor junctions
AU Gamboa, S. A.; Nguyen-Cong, H.; Chartier, P.; Sebastian, P. J.; Calixto, M. E.; Rivera, M. A.
CS Centro de Investigaciones en Energia Coordinacion de Solar-H2-Celdas de Combustible, CIE-UNAM, Temixco, Morelos, 62580, Mex.
SO Sol. Energy Mater. Sol. Cells (1998), 55(1-2), 95-104
CODEN: SEMCEQ; ISSN: 0927-0248
PB Elsevier Science B.V.
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
AB **CdTe** and CuInSe2 (CIS) thin films were electrodeposited and characterized for **photovoltaic** applications. Schottky barrier-type **photovoltaic** junctions were obtained using a heavily doped PMeT (poly-3-methylthiophene), prepd. by electropolymn., displaying nearly metallic behavior, and semiconductors such as **CdTe** and CIS obtained by electrodeposition. The **photovoltaic** structures formed and studied are Mo/CIS/PMeT/grid and Mo/**CdTe**/PMeT/grid Schottky barrier junctions. Solar to elec. conversion efficiency of the order of 1% was obtained in the case of PMeT/CIS and PMeT/**CdTe** junctions.
ST **solar cell polymer** semiconductor junction; polymethylthiophene copper indium selenide **solar cell**; **cadmium telluride** polymethylthiophene **solar cell**
IT Electrodeposition
Schottky **solar cells**
Solar cells
(**photovoltaic** structures based on **polymer**/semiconductor junctions)
IT 1306-25-8, **Cadmium telluride**, uses 7439-98-7, Molybdenum, uses 12018-95-0, Copper indium diselenide 84928-92-7, Poly-3-methylthiophene
RL: DEV (Device component use); USES (Uses)
(**photovoltaic** structures based on **polymer**/semiconductor junctions)

L12 ANSWER 10 OF 26 CA COPYRIGHT 2002 ACS
AN 127:296265 CA
TI Thin-film **photovoltaic** device and its manufacture
IN Albright, Scot P.; Chamberlin, Rhodes
PA Photon Energy, Inc., USA
SO U.S., 17 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM H01L031-0384
ICS H01L031-072; H01L031-18
NCL 136250000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5674325	A	19971007	US 1995-480452	19950607
	US 5868869	A	19990209	US 1997-946365	19971007

PRAI US 1995-480452 19950607

AB The device comprises a film layer having particles of .ltorsim.30 .mu.m size held in an elec. insulating matrix material to decrease the potential for elec. shorting through the film layer. The film layer may be provided by depositing preformed particles on a surrogate substrate and binding the particles in a film-forming matrix material to form a flexible sheet with the film layer. The flexible sheet may be sepd. from the surrogate substrate and cut into flexible strips. A plurality of the flexible strips may be located adjacent to and supported by a common supporting substrate to form a **photovoltaic** module having a plurality of elec. interconnected **photovoltaic** cells.

ST thin film **photovoltaic** cell manuf

IT **Polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(insulating matrix in manuf. of thin-film **photovoltaic** device)

IT **Solar cells**
(thin-film; manuf. of)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses 12018-95-0, Copper indium diselenide
RL: DEV (Device component use); USES (Uses)
(thin-film **photovoltaic** device and its manuf.)

L12 ANSWER 11 OF 26 CA COPYRIGHT 2002 ACS

AN 125:37994 CA

TI Wet **polymer** electrolyte photoelectrochemical **solar cells** and their manufacture

IN Takeuchi, Masataka

PA Showa Denko Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M014-00
ICS C08F020-34; C08L033-06; H01B001-06; H01L031-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08088030	A2	19960402	JP 1994-273057	19941012
PRAI	JP 1994-190061		19940719		

AB The cells have a redox-able species contg. ion conductive material between an electrode pair with .gtoreq.1 electrode being a semiconductor, where the ion conductive material is a solid **polymer** electrolyte of (co)**polymers** of (meth)acryloyloxyalkyl carbamate ester CH2:CR1CO(OQ)zNHCO2R2 [R1 = H or Me; R2 = linear, branched, or cyclic org. chain contg. .gtoreq.1 oxyalkylene group; Q = -(CH2)x- or -(CHMe)y-; x and y = 0 or 1-5 integer but not both = 0; and z = 0 or 1-10 integer], (co)**polymers** of (meth)acryloyl(oxyalkyl) carbamate ester CH:CR1CO(OQ)zNHCO2(R3O)R4 [R3 = -CH2- or -CHMeCH2-; R4 = C1-10 alkyl group, -CONH(Q'O)wCOCH:CH2, or -CONH(Q'O)1COCMe:CH2; Q' = -(CH2)x'- or -(CHMe)y'-; x' and y' = 0 or 1-5 integer but not both = 0; n = an integer; w and z = 0 or 1-10 integer], or (co)**polymers** of CH2:CR1CO(OQ)zNHCO2[(R6O)mCONHR5NHCO2]k (R3O)nR4 [R6 = -(CH2)2- or -CHMeCH2-; R5 = C1-20 alkylene group, allylene group, arylene group, or oxyalkylene group; and m and k = integer]. The **solar cells** are prepd. by adding a mixt. contg. the monomers to a photoelec. **solar cell** structure and polymg. the monomer.

ST photoelectrochem **solar cell polymer** electrolyte manuf

IT 106769-84-0P, **Cadmium** selenide **telluride** (Cd(Se,Te))

RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(**cadmium** selenide **telluride** photoelectrodes for wet photoelectrochem. **solar cells** with **polymer** electrolytes)

IT 161518-46-3P 163186-25-2P 177766-68-6P
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(compns. and manuf. of **polymer** electrolytes for wet photoelectrochem. **solar cells**)

IT 108-32-7P, Propylene carbonate 7553-56-2P, Iodine, uses 7681-82-5P, Sodium iodide, uses 13755-29-8P, Sodium fluoroborate
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(compns. of **polymer** electrolytes for wet photoelectrochem. **solar cells**)

L12 ANSWER 12 OF 26 CA COPYRIGHT 2002 ACS
AN 121:283459 CA
TI Current status of EVA degradation in Si modules and interface stability in **CdTe**/CdS modules
AU Czanderna, A. W.
CS National Renewable Energy Laboratory, Measurements and Characterization Branch, Golden, CO, 80401, USA
SO AIP Conf. Proc. (1994), 306(12TH NREL PHOTOVOLTAIC PROGRAM REVIEW, 1993), 147-55
CODEN: APCPCS; ISSN: 0094-243X
DT Journal; General Review
LA English
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 36
AB A review with 14 refs. of the goals, objectives, background, tech. approach, status, and accomplishments on the **Photovoltaic** Module Reliability Research Task. The accomplishments are reported on EVA **polymer** degrdn. in Si modules and on interface stability in **CdTe**/CdS modules. The modified EVA and potential EVA replacements, degrdn. mechanisms, efficiency losses from yellowed EVA, and equipment acquisitions are discussed. The stability of the SnO2/CdS interface and degrdn. at the **CdTe**/CdS interface are also described.
ST review EVA degrdn silicon **solar cell**; **cadmium telluride cadmium** sulfide photocell review
IT Photoelectric devices, solar
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules and interface stability in **cadmium** sulfide/**cadmium telluride** **solar cell** modules)

IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); USES (Uses)
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules)

IT 24937-78-8, EVA
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(interface stability in **cadmium** sulfide/**cadmium**

telluride solar cell modules)

L12 ANSWER 13 OF 26 CA COPYRIGHT 2002 ACS
AN 119:230036 CA
TI **Cadmium telluride**/doped poly(N-epoxypropylcarbazole) structure of a solid-state **photovoltaic** cell
AU Pokhodenko, V. D.; Guba, N. F.
CS L.V. Pisarzhevsky Institute of Physical Chemistry of the Ukrainian Academy of Sciences, Kiev, Ukraine
SO Synth. Met. (1993), 60(1), 73-5
CODEN: SYMEDZ; ISSN: 0379-6779
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
AB A solid-state **photovoltaic** cell of polycryst. **CdTe** /doped poly(N-epoxypropylcarbazole)/Au sandwich structure attained energy conversion efficiency of .ltoreq.3.2%. The spectral sensitivity range of the cell spans the UV, visible, and near-IR. The cell is chem. stable during storage and under operation and is easy to fabricate.
ST **cadmium telluride** conducting **polymer photovoltaic** cell; polyepoxypropylcarbazole **cadmium telluride solar cell**
IT Photoelectric devices, solar
(**cadmium telluride**/poly(N-epoxypropylcarbazole)/gold, characteristics of)
IT Electric conductors, **polymeric**
(poly(N-epoxypropylcarbazole), electrochem. oxidized, chem. stability of)
IT 55774-96-4, Poly(N-epoxypropylcarbazole)
RL: USES (Uses)
(photoelec. **solar cells**, with **cadmium telluride** and gold, characteristics of)
IT 7440-57-5, Gold, uses
RL: USES (Uses)
(photoelec. **solar cells**, with **cadmium telluride** and poly(N-epoxypropylcarbazole), characteristics of)
IT 1306-25-8, **Cadmium telluride** (**CdTe**), uses
RL: USES (Uses)
(photoelec. **solar cells**, with poly(N-epoxypropylcarbazole) and gold, characteristics of)

L12 ANSWER 14 OF 26 CA COPYRIGHT 2002 ACS
AN 117:115199 CA
TI **Solar-cell** arrays and their manufacture
IN Matsuyama, Fukateru
PA Canon K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04116986	A2	19920417	JP 1990-235892	19900907
	JP 2986875	B2	19991206		

AB The arrays has **solar cells** comprising a semiconductor layer held between a top electrode and a bottom electrode, connected to each other, the cells are covered at their ends or whole surface with an insulator and the elec. conductor layer connecting a top electrode and a

bottom electrode of 2 neighboring cells covers the insulator between the cells. The insulator may be a **polymer** or an inorg. material, the conductor may be a conductive **polymer** and/or a metal, and the semiconductor may be amorphous Si. The arrays are prepd. by forming patterned semiconductor and top electrode layers on bottom electrodes leaving part of the bottom electrodes exposed, forming insulator films to cover the ends or whole surface of the cells, removing the insulator films from part of a top electrode and a bottom electrode of 2 neighboring cells, and forming conductor layers to connect the exposed electrode areas.

ST silicon **solar cell** array

IT Epoxy resins, uses
Polyimides, uses
Siloxanes and Silicones, uses
RL: USES (Uses)
(elec. insulator, **solar cells** covered with, manuf. of arrays of)

IT Electric insulators and Dielectrics
(photoelec. **solar cells** covered with, manuf. of arrays of)

IT Photoelectric devices, solar
(silicon and **cadmium** sulfide-**cadmium telluride**, arrays, manuf. of)

IT 12033-60-2, Silicon nitride (SiN)
RL: USES (Uses)
(elec. insulator, **solar cells** covered with, manuf. of arrays of)

IT 7440-21-3P, Silicon, uses
RL: PREP (Preparation); USES (Uses)
(photoelec. **solar cells**, arrays, with elec. insulators among unit cells, manuf. of)

L12 ANSWER 15 OF 26 CA COPYRIGHT 2002 ACS
AN 114:146955 CA
TI **Solar cells** having coated light-incident side
IN Omura, Kuniyoshi; Suyama, Naoki; Hibino, Takeshi; Murozono, Mikio
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02177573	A2	19900710	JP 1988-334460	19881228

AB The **solar cells** have a glassy layer of resin mixed with inorg. powder on their light-incident side. Preferably, the **solar cells** contain 2 layers of semiconductor compds. (CdS or compd. contg. Cd and S, and **CdTe** or compd. contg. Cd and Te), electrodes, and a transparent glass coated with the resin mixt. at the light-incident side. The inorg. powder is selected from SiO2 and TiO2 at <50 wt. % of the resin. The coating may be applied in a required pattern. The coating gives the **solar cells** better appearance, decreases reflection loss of the cells, and makes cutting of glass easier when sepg. **solar cells** made on a common glass substrate,.

ST **solar cell** resin silica coating; titania resin coating **solar cell**

IT Photoelectric devices, solar

(**cadmium** sulfide-**cadmium telluride**, with light-incident side coated with inorg. powder-contg. resin films)

IT 7631-86-9, Silica, uses and miscellaneous 13463-67-7, Titania, uses and miscellaneous
RL: USES (Uses)
(**solar cells** with **polymer** layers contg.)

L12 ANSWER 16 OF 26 CA COPYRIGHT 2002 ACS
AN 114:125844 CA
TI **Solar cell** modules
IN Nakano, Akihiko
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 02170475	A2	19900702	JP 1988-324125	19881222

AB The modules have Group II chalcogenide or Group II chalcogenide/Group I-Group III chalcogenide semiconductors sealed in a package, which has an org. **polymer** or hydrophobic porous org. material attached to or a porous inorg material-org. material mixt. filled in its holes. The **polymer** may be a silicon resin or a polyolefin, the porous org. material may be a fluoropolymer tape, and the filler may be sintered C mixed with wax or porous inorg. oxides. This structure allows O to permeate into the modules to prevent deterioration of the modules.

ST **solar cell** module oxygen permeable; silicone resin **solar cell** module; polyolefin **solar cell** module; fluoropolymer **solar cell** module; carbon wax **solar cell** module; oxide inorg **solar cell** module; chalcogenide **solar cell** module

IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride** and **cadmium** sulfide-copper indium selenide, modules, oxygen-permeable packaging materials for)

IT Fluoropolymers
Rubber, silicone, uses and miscellaneous
RL: USES (Uses)
(**solar cell** modules with packaging materials of oxygen-permeable)

IT Waxes and Waxy substances
RL: USES (Uses)
(**solar cell** modules with packaging oxygen-permeable materials contg.)

IT 9002-88-4, Polyethylene 25068-26-2, Poly(4-methyl pentene-1
RL: USES (Uses)
(**solar cell** modules with packaging materials of oxygen-permeable)

IT 1344-28-1, Alumina, uses and miscellaneous 7440-44-0, Carbon, uses and miscellaneous
RL: USES (Uses)
(**solar cell** modules with packaging oxygen-permeable materials contg.)

L12 ANSWER 17 OF 26 CA COPYRIGHT 2002 ACS
AN 107:62036 CA
TI Power generating optical filter

IN Ovshinsky, Stanford R.
PA Energy Conversion Devices, Inc., USA
SO Eur. Pat. Appl., 56 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01L031-02
ICS H01L031-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 218997	A2	19870422	EP 1986-113548	19861002
	EP 218997	A3	19890705		
	EP 218997	B1	19930728		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	CA 1268973	A1	19900515	CA 1986-519109	19860925
	IN 166970	A	19900811	IN 1986-DE855	19860926
	AT 92212	E	19930815	AT 1986-113548	19861002
	JP 2575667	B2	19970129	JP 1986-241170	19861009
	JP 08056007	A2	19960227	JP 1995-187457	19950724
	JP 2752924	B2	19980518		
PRAI	US 1985-786579		19851011		
	US 1985-806232		19851206		
	EP 1986-113548		19861002		

AB The title filter has a transparent substrate, a 1st substantially transparent electrode disposed on at least designated areas of the substrate, a body of **photovoltaic** material disposed on the 1st electrode, and a 2nd substantially transparent electrode disposed on the body of **photovoltaic** material, to generate elec. power from absorbed selected wavelengths and transmit at least portions of selected wavelengths of unabsorbed incident light in the visible spectrum. Silicate or borosilicate glass, **polymers** (e.g., polyesters, polyimides, or polycarbonates), or laminated layers of these materials are used as the transparent substrate. Thin film semiconductors (amorphous F-doped hydrogenated Si, Si-Ge, CdS/**CdTe**, etc.) having p-i-n structure are used as the **photovoltaic** material; oxides of In, Sn, In-Sn, and Zn, etc., are used as the transparent electrodes. These filters are useful for motor vehicles or architectural building windows.
ST window glass **solar cell**
IT Windows
Windshields
(glass for, laminated with **solar cells**)
IT Photoelectric devices, solar
(window glass with laminated)

L12 ANSWER 18 OF 26 CA COPYRIGHT 2002 ACS
AN 106:123148 CA
TI **Solar-cell** module
IN Nakano, Akihiko; Takada, Hajime; Hibino, Takeshi; Yoshida, Manabu
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI JP 61280677 A2 19861211 JP 1985-122990 19850606

AB A **solar-cell** module has a **solar cell** formed on a substrate with blank edges, a protection film, a resin layer between the cell and the film, and a nonadhesive insulation sheet between the resin layer and the cell for absorbing mech. stress caused by the difference in thermal expansion. A thin-film CdS-**CdTe** or amorphous Si cell is used, and the sheet is a **polymer** having m.p. higher than that of the resin and is being larger than the cell. A CdS-**CdTe** cell was formed on an alkali-free borosilicate glass substrate with 6.5-mm-wide edges of the substrate left blank. A 50-.mu. poly(ethylene terephthalate) sheet, a 0.1-mm-thick anhydride-modified polyethylene layer, and a resin-coated Al protection film were stacked successively on the substrate. The assembly was inserted into a bag, and the bag was evacuated and heated to 135.degree. to seal the protection film to the blank edges by the atm. pressure. The output power of this module decreased 3% after 50 heat cycles between -20 and +80.degree. in a 90% relative humidity environment vs. 18% for a module without the sheet. **Telluride cadmium solar cell** module.

ST **solar cell** module PET; cadmium sulfide **solar cell** module

IT Photoelectric devices, solar
(modules, with PET stress-absorbing sheets)

IT 7440-21-3, Silicon, uses and miscellaneous
RL: USES (Uses)
(photoelec. **solar-cell** modules, amorphous, with PET stress-absorbing sheets)

IT 1306-25-8, **Cadmium telluride**, uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules from junction of cadmium sulfide and, with PET stress-absorbing sheets)

IT 1306-23-6, Cadmium sulfide, uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules from junction of **cadmium telluride** and, with PET stress-absorbing sheets)

IT 25038-59-9, PET (polyester), uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules with stress-absorbing sheets of)

L12 ANSWER 19 OF 26 CA COPYRIGHT 2002 ACS

AN 105:118218 CA

TI Manufacture of **solar cell**

IN Isozaki, Yasuto; Hasegawa, Hiroshi

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L031-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61111585	A2	19860529	JP 1984-232887	19841105
	JP 05019836	B4	19930317		

AB A depolymerizable **polymer** is added to CdS-CdCl2 and **CdTe** -CdCl2 mixts. to form pastes for **solar cell** manuf. The **polymer** is decompd. by heating after the application of the paste. Thus, a paste of CdS 60, CdCl2 6, poly(Me methacrylate) 3, and benzyl alc. 31% was screen printed on a glass substrate, heated at

400.degree. for 1 h, and at 690.degree. in N for 1 h to form a CdS film. A paste of **CdTe** 60, CdCl2 0.3, poly(methacrylic acid) 3, and benzyl alc. 36.7% was screen printed on the sintered CdS film, heated at 400.degree. for 1 h, and at 620.degree. in N for 1 h to form a sintered **CdTe** film. A C-Ag electrode and a Ag or In electrode were then formed on the **CdTe** and CdS films, resp., to form a **solar cell**. The sintered layers showed no cracks and had accurate patterning, and the prepd. cell had an output voltage of 0.8 V.

ST cadmium sulfide **solar cell**; **telluride cadmium solar cell**; polymethyl methacrylate **solar cell** manuf

IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride**, screen printing in manuf. of)

IT 9011-14-7 25087-26-7
RL: USES (Uses)
(in manuf. of **cadmium** sulfide-**cadmium telluride solar cells**)

IT 1306-25-8P, preparation
RL: PREP (Preparation)
(photoelec. **solar cells** from junctions of cadmium sulfide and, screen printing in manuf. of)

IT 1306-23-6P, preparation
RL: PREP (Preparation)
(photoelec. **solar cells** from junctions of **cadmium**